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**CERTIFICATE OF MAILING**

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Jeannie Camara

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Jeannie Camara

(Signature of Person Mailing Paper or Fee)



**PATENT APPLICATION**  
**Attorney Docket No. SUN-P6578-PIP**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE PATENT APPLICATION OF

)  
) Examiner: Manoskey, Joseph D.  
Ralph B. Campbell )  
 ) Group Art Unit: 2113  
Serial No. 10/043,038 )  
 )  
Filing Date: November 7, 2001 )  
 )  
Title: METHOD AND APPARATUS FOR )  
LOGGING FILE SYSTEM OPERATIONS )

**AMENDMENT TRANSMITTAL LETTER**

Mail Stop: Non-Fee Amendment  
Assistant Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In connection with the above-referenced U. S. patent application, transmitted herewith are the following papers:

- [x] Response under 37 C.F.R. § 1.111 to official action mailed September 30, 2004.
- [ ] A petition for extension of time is also enclosed with a fee of \$55.00 for a one-month extension for a small entity.
- [ ] Terminal disclaimer under 37 C.F.R. § 1.321(c), including
  - [ ] check for \$110.00 fee under 37 C.F.R. § 1.20(d), and
  - [ ] 2 certificates under 37 C.F.R. § 3.73(b).
- [x] Appendix including a copy of the postcard from the USPTO and page 8 of the specification .
- [x] No additional claims fees are required.

[ ] An additional fee is required, and is calculated as shown below:

AMENDED CLAIMS					
	NO. OF CLAIMS	HIGHEST NO. OF CLAIMS PREVIOUSLY PAID FOR	EXTRA CLAIMS	RATE	ADDTL FEE
Total Claims		MINUS = 20	0	x \$18 =	
Independent Claims		MINUS = 3	0	x \$78 =	
If Amendment adds multiple dependent claims, add \$260.00					
Total Amendment Fee					
If small entity status is claimed, subtract 50% of Total Amendment Fee					
<b>TOTAL ADDITIONAL FEE DUE FOR THIS AMENDMENT</b>					<b>\$0.00</b>

- [ ] A check in the amount of \$\_\_\_\_ is enclosed.  
[ ] Charge \$\_\_\_\_ to Deposit Account No. \_\_\_\_ (Docket No. \_\_\_\_).  
[x] Please deduct any underpayments, credit any overpayments, and charge all required extension of time fees to Deposit Account Number 50-1003. (Docket No. SUN-P6578).

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Respectfully submitted,

By



Edward J. Grundler  
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Date: October 14, 2004

Patent Application for:  
METHOD AND APPARATUS FOR LOGGING FILE SYSTEM OPERATIONS  
Inventor(s): Ralph Campbell et al.

Please stamp and confirm receipt in the U.S. Patent Office of the following:

- Specification and Abstract: 11 pages
- Claims: 8 pages
- Drawings: 3 pages
- Power of Attorney/Declaration of Inventor(s) ✓
- Assignment and PTO-Form 1595
- Power of Attorney by Assignee
- Small Entity Declaration
- Filing Fee Amount: Check for \$ 1,014.00
- Express Mail Certificate No. EL917901768 US
- Authorization to Charge Deposit Account No. 50-1003
- Other Postcard

RECEIVED



Attorney Docket No.: SUN-P6578-PIP  
Date Mailed: November 7, 2001

Attorney: A. Richard Park

operation from client application 104. Next, the system checks for dependencies with ongoing file system operations (step 204).

For example, the file system operation may have a file ID in common with an ongoing operation, or the file system operation may involve the same metadata 5 as another ongoing file system operation. In this case, the system ensures that related file system operations complete in an order that satisfies any dependencies between the related file system operations.

In another example, a first file system operation creates a file and a second 10 file system operation deletes the same file. In this case, the first file system operation must take place before the second file system operation. Otherwise, the second file system operation will attempt to delete a non-existent file.

Note that step 204 can involve locking around steps 206, 208, 210, 212 and 214 below, so that the log matches the operations to the file and the steps for one operation are not interleaved with other operations to the same file.

15 Next, the system gets a transaction ID for a set of related file system operations (step 206). This allows the set of related file system operations to be grouped together so that the system can ensure that they occur together.

The system then makes a call to the underlying file system to perform the 20 operation (step 208). If the underlying file system returns a failure, the system returns an error to client application 104 (step 210).

Otherwise, the system translates the file system operation into a log entry (step 212), and stores the log entry to a log device along with the transaction ID 25 (step 214). Note that the log entry includes information needed to perform step 208 on the secondary 103. This can include arguments and data needed to repeat an operation and the transaction ID or some other means of repeating the operation in the same order on secondary 103. (Normally, the order of records a log is the order to replay them.)